

Notice of Allowability

Application No.

09/932,042

Examiner

Chester T. Barry

Applicant(s)

WALTON ET AL.

Art Unit

1724

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to amendment filed 2/24/04.
2. ☒ The allowed claim(s) is/are 1-7,9,11,14-16,19 and 20.
3. ☐ The drawings filed on _____ are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date 9/17/2003
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

Chester T. Barry
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Art Unit: 1724

Art Unit: 1724

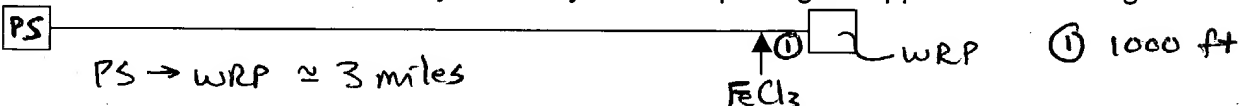
The following is an examiner's statement of reasons for allowance:

In response to an art rejection, certain pending claims have been narrowed to recite *inter alia* the limitation that

no nitrate ion is added to said wastewater stream

Hamaguchi describes adding nitric acid as an alternative to adding nitrate ion. However, insofar as nitric acid is well-known to be a strong base (see, for example, <http://www.efma.org/Publications/NitricAcid/Section03.asp>), nitric acid is widely known to dissociate into ions, i.e., nitrate ion and hydrogen ion, in an aqueous solution. Hamaguchi suggests using a commercially available 68% aqueous solution of nitric acid. As noted, such a composition inherently contains nitrate ion. While anhydrous nitric acid is known to exist (see, for example, USP 6200456 at col 1 lines 18-39), there is no motivation to ignore Hamaguchi's suggested form of nitric acid in favor of a presumably more expensive and less-readily available form of nitric acid, i.e., anhydrous nitric acid. See, for example, USP 4673560 to Masse at col 3 lines 7-13. Any conclusion of obviousness premised on substitution of anhydrous nitric acid (i.e., a form lacking nitrate ion) for an aqueous form of the acid (i.e., a form containing nitrate ion), as disclosed by Hamaguchi, would clearly bear the fingerprints of improper hindsight. Accordingly, claims 1 – 4, 9, 11, 14-16 are allowable over Hamaguchi.

Weber describes a sanitary sewer system comprising an approx 3 miles long 18-inch forcemain extending from an upstream pump station ("PS") to the headworks of the downstream wastewater treatment plant, aka, water reclamation plant ("WRP"). FeCl_3



Art Unit: 1724

(ferric chloride) is added at the arrow, about 1000 feet upstream of the WRP. Chlorine gas, a known oxidant, is added at the WRP. Weber states that anaerobic sulfate-reducing bacteria in the slime layer of the interior wall of the forcemain convert sulfates in the wastewater to hydrogen sulfide. Applicants' claims require that iron salt be added "upstream of hydrogen sulfide volatilization." In this flow system, "upstream of" means, "prior to." Applicants' specification (at page 6) defines the expression, "prior to hydrogen sulfide volatilization," as ""prior to *some* [hydrogen sulfide] volatilization, not necessarily prior to *all* [hydrogen sulfide] volatilization" (emphasis in original). Accordingly, the expression recited in the claims, "upstream of hydrogen sulfide volatilization," means "upstream of at least some hydrogen sulfide volatilization."

Weber describes a method for reducing the evolution of hydrogen sulfide vapors within a sanitary sewer system, comprising the steps of: adding an iron salt to a wastewater stream within said sanitary sewer system in which there is hydrogen sulfide volatilization to produce free iron ions which react with said hydrogen sulfide to form iron (II) sulfide; and intentionally adding an oxidant, i.e., chlorine gas, to said wastewater stream downstream of said iron salt addition to regenerate free iron ions from said iron (II) sulfide. Weber fails to state, however, whether any hydrogen sulfide volatilization takes place within the last 1000 feet of the forcemain. There does not appear to be any evidence of record showing that sulfate present at the pumping station is ***necessarily not*** fully consumed by sulfate reducing bacteria within the portion of the forcemain upstream of the point at which Weber teaches addition of ferric chloride. That is, it is not at all clear that any sulfate escapes reduction by the sulfate reducing bacteria in the

Art Unit: 1724

uppermost portion of the forcemain upstream of the point at which Weber teaches ferric chloride addition. Indeed, it may very well be that sulfate reducing bacteria present in the slime layer of the forcemain upstream of that ferric chloride addition point fully consume the sulfate present in the wastewater. *As such, perhaps no H₂S evolves in the last 1000 ft of the forcemain.*

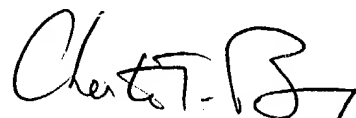
Per claims 11, 15, 16, it is reasonably clear that "sulfide controlled" refers to the amount of hydrogen sulfide that would have been evolved but for the iron salt addition and deliberate oxidant addition less the amount of hydrogen sulfide evolved with the addition of iron salt and deliberate addition of oxidant.

Claims 2 and 11 are not separately patentable because USP 5104527 to Clinkenbeard suggests the substitution of one oxidizing agent, such as hydrogen peroxide, for chlorine gas, to control sulfide odors from wastewater. USP 5104527 to Clinkenbeard states:

One common method of treating these sulfur-bearing waste water streams is by adding to the stream an oxidizing chemical such as hydrogen peroxide, chlorine dioxide, potassium permanganate, chlorine gas, sodium hypochlorite or ozone.

(at column 1).

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."



CHESTERT T. BARRY
PRIMARY EXAMINER

3/5/04